

# Network-Enabled Battle Command

Lieutenant General William S. Wallace, U.S. Army

*This article is reprinted from the winter 2004/2005 issue of RUSI Defence Systems, the Royal United Services Institute, Whitehall, London. British spelling and punctuation conventions are preserved as in the original article.—Editor.*

*Warfare is not 'network centric'.  
It is either 'people centric', or it has  
no centre at all.<sup>1</sup>*

**T**ECHNOLOGICAL innovations play a paradoxical role in military transformation. While they help to resolve existing battlefield challenges on the one hand, they invariably introduce new challenges on the other. Network-centric operations (NCO)<sup>2</sup> is just such an innovation.

The problem that NCO helps solve in a dramatic way is situational understanding<sup>3</sup> of the battlefield and support to decision-making at every level of command. NCO are possible because of technological advances that enable unprecedented collection, processing and analysis of information, in accessible databases combined with improved communications technology.

The NCO concept promises to increase combat power and military efficiency by increasing the timeliness and quality of processed information while expanding information access to a much broader spectrum of leaders than was previously possible.

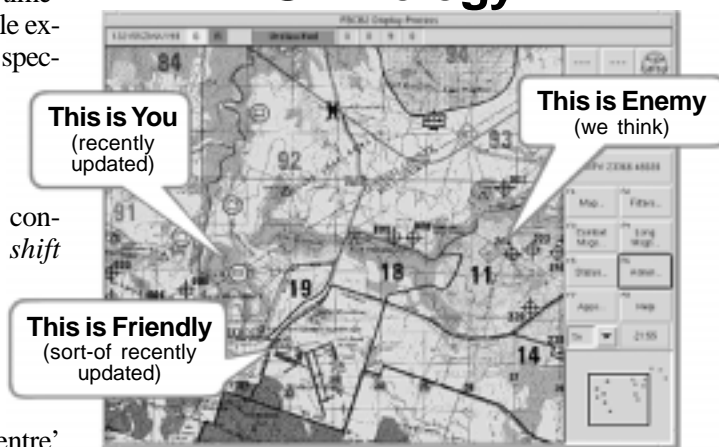
However, discussions of NCO tend to place emphasis for command and control on the 'gizmo' (i.e. the tool) rather than on the person using the 'gizmo'. The 'network-centric' concept introduces a dangerous *temptation to shift responsibility for making military decisions from commanders to the systems themselves.*

No matter how sophisticated the technology may become in providing a seemingly improved picture of the battlefield, the true 'centre' of effective command and control (C2) remains the commander. Moreover, no matter how technologi-

cally advanced we might be, significant gaps in the information landscape of a dynamic battlefield will always exist. Both chance and unanticipated actions by enemy combatants are in play and are all but invisible to the 'network-centric' database. The timely judgment by seasoned commanders taking calculated risks in the face of uncertainty is a fixture of the modern battlefield and will be so on the post-modern as well.

A more accurate way to conceptualise initiatives associated with NCO is as commander-centric operations enabled by the network. Placing the commander firmly at the centre of the concept would emphasise—semantically, at least—that command remains fundamentally a human, not technological, activity. This overarching principle is essential for a C2 concept that guides the conduct of future military operations.

## Gizmology



This is a *representation* of the battlefield. Caution. You've got to understand where the icons come from! Your own position is the only one that is almost completely reliable.

## Relationship of NCO to Command

To highlight the appropriate relationship of the commander to NCO, it might be useful to observe that NCO depends on two essential factors: knowledge and technology.<sup>4</sup> NCO combine shared knowledge and technical connectivity to generate a quantum leap forward in mission accomplishment. These tenets explain the concept:

- A robustly networked force improves information sharing.
- Information sharing enhances the quality of information and shared situational understanding.
- Shared situational understanding enables collaboration and self-synchronisation, and enhances sustainability and speed of command.
- These, in turn, dramatically increase mission effectiveness.<sup>5</sup>

Sharing knowledge in a more efficient and timely manner is the key objective of NCO. The principal recipients of shared knowledge are those involved in operations: the commander, the staff (the personnel of the C2 system) and the members of the force themselves. It is expected that a system that vastly improves information/knowledge exchange and shared situational understanding will facilitate superior decision-making.<sup>6</sup>

Nevertheless, recent military operations have highlighted substantial NCO shortcomings. First, unless properly managed, the amount of information may overwhelm the commander and staff. Second, the most important information may be difficult to distinguish from trivial data. Third, as higher commanders have access to better and faster information and knowledge, they may be tempted to micro-manage subordinates' actions.<sup>7</sup> Fourth, the concept concentrates on the science of control while neglecting the art of command. And, fifth, NCO frequently ignores the role of the commander.

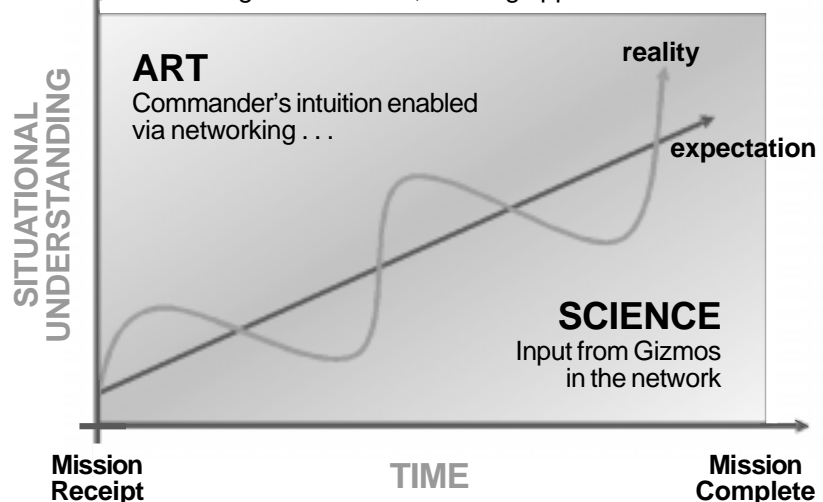
With regard to the last point, it is fundamental to observe that the American Army's prevailing view of command and control of land forces is expressed in the concept of 'Battle Command'.<sup>8</sup> This concept, first articulated in FM 100-5 (1993) and expanded in FM 3-0 (2001), emphasises the need to combine both the art and science of warfare in applying decision-making and leadership to achieve overall mission success.

In the Battle Command concept, commanders use a personal decision-making process that incorporates *visualising* the operation, *describing* the operation in terms of intent and guidance, and then *directing* actions within that intent.<sup>9</sup> Visualisation is the process by which the commander thinks through what he or she expects to happen in the area of operations during the upcoming mission.<sup>10</sup> Quite apart from the information received from the staff, the planning dynamics of the process involve judgments and observations acquired from years of training and personal experience. Taking the time to visualise the range of possibilities prior to an operation allows the commander and his troops to react more quickly to both expected and unexpected events.

The implicit purpose of the commander's visualisation is to improve situational understanding and to support decision-making. Though commander's visualisation is a mental process, it is supported by staff and subordinates through three doctrinal means: commander's intent, planning guidance, and commander's critical information requirements (CCIR).<sup>11</sup> The commander's intent<sup>12</sup> describes his or her vision of an end state that represents mission success along with the key tasks to accomplish in order to achieve the desired end state. The planning guidance elaborates the commander's intent for planning purposes and establishes parameters for the staff to consider in developing courses of action. The CCIR lay out the commander's information requirements for decision-making during the operation itself.<sup>13</sup> All three are the commander's responsibility, not a staff process. Together they depict the visualised panorama of the commander's

## Battle Command

... is the exercise of command in operations against a hostile, thinking opponent.



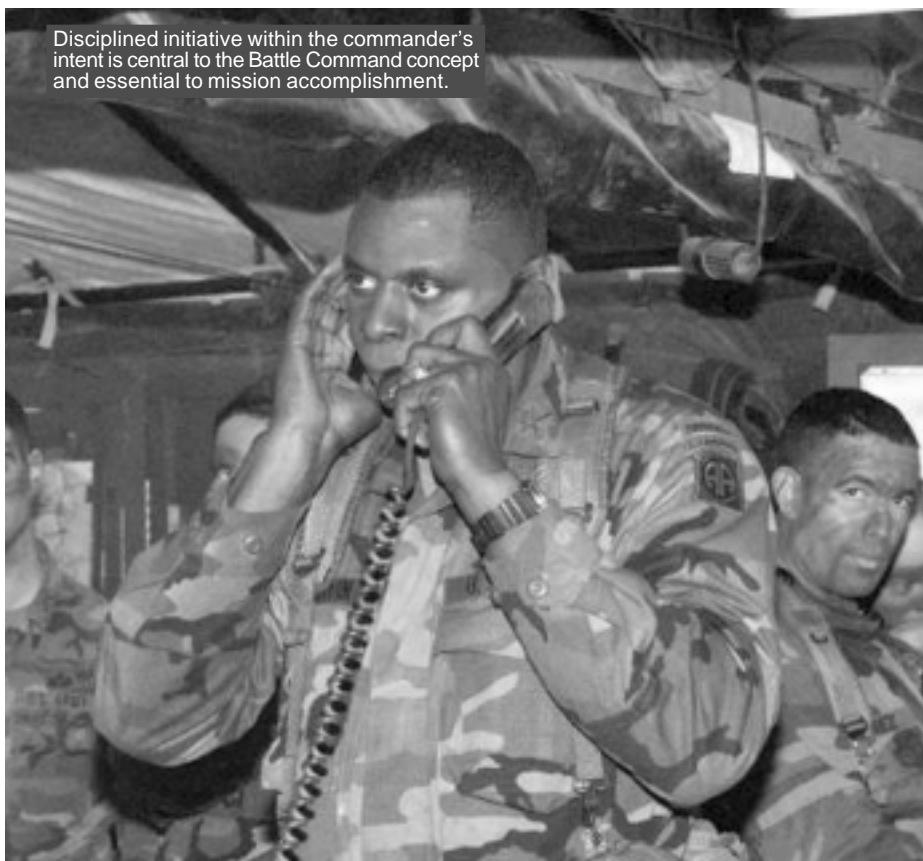
overall operational concept. The concept can be aided, even enhanced, by ‘gizmos’, but not replaced by them.

The US Army follows Mission Command<sup>14</sup>—the need for subordinate leaders at all echelons to exercise disciplined initiative within the commander’s intent to accomplish missions. Leadership<sup>15</sup> is central to the Battle Command concept. In exercising leadership, the commander combines the art and science of warfare in thinking and action: the science deals with facts and processes based on principles

derived from the physical world—this is where the network is most useful; the art emphasises using intuitive faculties that are acquired from education, training, experience and personal observation. In practice, the two cannot be separated without significant degradation of the process.

Battle Command requires that the commander be the focal point of decision-making and execution within military operations. The role of the staff—and supporting technological aids—is to support the commander in achieving situational understanding, making decisions, disseminating directives, and following directives through execution. Irrespective of how sophisticated the NCO information display might be, there is no situational understanding until the commander applies his skilled judgment, and that of his staff, to interpreting the display in the context of the mission and visualisation of the end state of the operation. Because there are always gaps and inconsistencies in information, the commander must use his or her ‘mind’s eye’ to determine what displays mean. Inevitably, even with net-centricity, there is less information than one would like to have. Filling in gaps is a function of command, enabling an

Disciplined initiative within the commander’s intent is central to the Battle Command concept and essential to mission accomplishment.



US Army

experienced commander to navigate gaps using his or her experience to identify feasible solutions in a time-critical environment.

### **Battle Command on the Move**

In support of improved situational understanding, visualisation and decision-making, NCO enables the commander to collaborate more efficiently with his staff, subordinates, and even higher commander. NCO has the potential to give the commander the freedom to circulate away from his command post (CP) and conduct ‘battle-command-on-the-move’. The commander can observe developments on the battlefield while continuing to receive information and analysis from the CP, even if not personally present. Battle-command-on-the-move is not a new concept—General Rommel was famous for his forward presence on the World War Two battlefield. What is new, however, is technology that greatly reduces the consequences of disconnecting even temporarily from the information flow and analysis.

As a result, meetings no longer need to be held on a Jeep top, but can be conducted over the network with participants using common data and in-

formation. The network gives the staff the capability to *network with* key players and share data, information and knowledge products to better support situational awareness.

This power of the network was evident in Operation Iraqi Freedom when the Combined Forces Land Component Commander (CFLCC) decided to commit his reserve, the 82nd Airborne Division, into the V Corps sector. The V Corps planners used the network to conduct a mission analysis, develop a course of action and wargame it with planners from all the divisions of the Corps spread out over 300km. They developed a recommendation for the V Corps commander within four hours of receiving the execution order from CFLCC. The commander was then able to decide quickly where and how to commit the 82nd Airborne Division and 101st Airborne Division (Air Assault).<sup>16</sup> These divisions assumed their mission and area of operations in the V Corps area of operations within two days.

There is, however, great danger in overstating the goodness of net-centricity. In order to command, the commander must be present on the battlefield, sharing danger with his soldiers and learning firsthand and directly their problems, successes and opportunities. The network in no way takes that responsibility away. Regardless of the 'gizmos' available, command of soldiers remains an affair of the heart, and personal presence achieved by persistent battlefield circulation is an absolute necessity.

## Conclusions

The advantages of using a network in military operations are numerous and should be recognised. First, the network allows greater and faster collaboration among commanders and staffs at all levels, empowering them to exercise greater initiative in accordance with commander's intent. Second, the commander can receive better displays of the situation without having to send multiple requests for information to subordinates, thus allowing warfighters to focus on accomplishing their missions. Additionally, the commander can share the basis for his or her situational understanding with subordinates and staff. Finally, the network can give commanders unprecedented freedom to circulate on the battlefield among subordinate commanders and soldiers without losing essential connectivity to the information and analysis necessary for command.

Despite the enormous benefits of using a network, it would be folly to lose sight of the fact that it is still merely a tool to aid the commander in understanding and decision-making. We are a commander-centric military, using a network to network. Battle Command—both the art and the science—is the centrepiece and integrator of all functional areas and mission capabilities. At the end of the day, the commander must exercise the art of Battle Command using the best available information in an uncertain environment to make tough decisions that put soldiers' lives on the line. **MR**

## NOTES

1. Lieutenant Colonel Ralph E. Giffin, CAAF, and Darryn J. Reid, Ph D, Australian MoD, *A Woven Web of Guesses, Canto One: Network Centric Warfare and the Myth of the New Economy*, unpublished manuscript, page 21

2. Network-centric operations is often referred to as network-centric warfare

3. The US Army uses the term 'situational understanding' in preference to 'situational awareness' to imply going beyond what is immediately perceived to applying judgment in order to recognise relationships between the factors of the situation and the implications for the future. Situational understanding is 'the product of applying analysis and judgment to the common operational picture to determine the relationships among the factors of mission, enemy, terrain and weather, troops and support available, time available, and civil considerations', US Department of the Army Field Manual 3-0, 14 June 2001, pages 11-15. Hereafter referred to as FM 3-0

4. Network-centric operations are 'an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision-makers and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronisation. In essence, NCO translates information superiority into combat power by effectively linking knowledgeable entities in the battlespace', US Department of Defense, *Joint Command and Control Functional Concept*, February 2004, v 1.0, page A-4. Hereafter referred to as JC2 FC

5. *Network Centric Warfare*, Department of Defense Report to Congress, 27 July 2001, Executive Summary, page 1

6. US Department of Defense, *Net-Centric Joint Functional Concept*, v 0.5, 1 Oct 2004, page 18

7. JC2 FC, pages 4-5

8. Battle Command is 'the exercise of command in operations against a hostile, thinking enemy', FM 3-0, page 5-1

9. FM 3-0, page 5-1 to 5-4

10. US Department of the Army Field Manual 6-0, 11 August 2003, page 2-16. Hereafter referred to as FM 6-0. Commander's visualisation is 'the mental process of achieving a clear understanding of the force's current state with relation to the enemy and environment (situational understanding), and developing a desired end state that represents mission accomplishment and the key tasks that move the force from its current state to the end state (commander's intent)'

11. FM 6-0, page 2-18

12. Commander's intent is 'a clear, concise statement of what the force must do and the conditions the force must meet to succeed with respect to the enemy, terrain and the desired end state', FM 3-0, page 5-14

13. CCIRs are 'elements of information required by commanders that directly affect decision-making and dictate the successful conduct of military operations', FM 3-0, page 11-13. CCIR consist of two major types: Priority Intelligence Requirements and Friendly Force Information Requirements

14. Mission Command is 'the conduct of military operations through decentralised execution based on mission orders for effective mission accomplishment', FM 6-0, page 1-17

15. Leadership is 'influencing people—by providing purpose, motivation, and direction—while operating to accomplish the mission and improving the organisation', US Army Field Manual 22-100, Army Leadership, page 1-4

16. Fontenot, COL (R) Gregory, Lt Col E.J. Degen, Lt Col David Tohn, *On Point: The United States Army in Operation Iraqi Freedom*, Fort Leavenworth, Kansas, Combat Studies Institute Press, 2004, pages 211-212

*Lieutenant General William S. Wallace, U.S. Army, is Commanding General, Combined Arms Center and Fort Leavenworth. He received an M.S. in Operations Analysis, an M.A. in International Relations, and he is a graduate of the Naval Postgraduate School in Monterey, the U.S. Army Command and General Staff College, and the U.S. Naval War College. He has served in various command and staff positions in the continental United States, Vietnam, Germany, and Iraq.*